When ANY Function Will Just NOT Do

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Function Search Criteria

<table>
<thead>
<tr>
<th></th>
<th>ANY Function</th>
<th>NOT Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>alpha-numeric character</td>
<td>ANYALNUM(string, &lt;start&gt;)</td>
<td>NOTALNUM(string, &lt;start&gt;)</td>
</tr>
<tr>
<td>alphabetic character</td>
<td>ANYALPHA(string, &lt;start&gt;)</td>
<td>NOTALPHA(string, &lt;start&gt;)</td>
</tr>
<tr>
<td>digit</td>
<td>ANYDIGIT(string, &lt;start&gt;)</td>
<td>NOTDIGIT(string, &lt;start&gt;)</td>
</tr>
<tr>
<td>character that is valid as the first character of a SAS variable*</td>
<td>ANYFIRST(string, &lt;start&gt;)</td>
<td>NOTFIRST(string, &lt;start&gt;)</td>
</tr>
<tr>
<td>lowercase letter</td>
<td>ANYLOWE(string, &lt;start&gt;)</td>
<td>NOTLOWE(string, &lt;start&gt;)</td>
</tr>
<tr>
<td>character that is valid in a SAS variable*</td>
<td>ANYNAME(string, &lt;start&gt;)</td>
<td>NOTNAME(string, &lt;start&gt;)</td>
</tr>
<tr>
<td>punctuation character</td>
<td>ANYPUNCT(string, &lt;start&gt;)</td>
<td>NOTPUNCT(string, &lt;start&gt;)</td>
</tr>
<tr>
<td>white-space character blank, horizontal and vertical tab, carriage return, line feed, and form feed</td>
<td>ANYSPACE(string, &lt;start&gt;)</td>
<td>NOTSPACE(string, &lt;start&gt;)</td>
</tr>
<tr>
<td>uppercase letter</td>
<td>ANYUPPER(string, &lt;start&gt;)</td>
<td>NOTUPPER(string, &lt;start&gt;)</td>
</tr>
</tbody>
</table>

* SAS variable name under VALIDVARNAME=V7

Start:
- optional.
- determine search direction
  - Start > length of the
  - Start < length of the
  - Search character is not found

Functions yield the position of the first encounter of the desired search. It returns a zero when one of the following is true:
- Search character is not found
- Start > length of the string
- Start = 0

Week Number and Day Number from Text

Building upon previous example we can extract week and day. Data comes in a variety of formats but what is consistent is that there is a number that represents the week that is preceded by characters, punctuation, and/or white space. This week number is then followed by more characters, punctuation, and/or white space, with the last character in the string being a number which represents the day.  
1. Find the location of the first number when searching from the left. 
   firstnumloc = anydigit(visit);

2. Find the location of first alpha character when searching from left starting the search at the position of first number.
   secalploc = anyalpha(visit, firstnumloc);

3. Find the location of first number when searching from right
   lastnum = anydigit(visit, -length(visit));

4. Extract the week portion using the location of first number when searching from left (a) and the location of first alpha character after the first number when searching from left (b).
   WEEK = input(substr(visit, firstnumloc, secalploc - firstnumloc), best);

5. Extract the day portion using the location of first number when searching from right (c).
   DAY = input(substr(visit, lastnum, best));

It is very important to keep in mind what is actually being searched by the functions. For example, if you want to determine if a character can be converted to numeric, then you will need to ensure that there are no alphabetic characters in the value. You may be tempted to use NOTALPHA. However, NOTALPHA will return the position of the first non-alphabetic character and due to the case that some character results can contain both alphabetic and numeric characters, the use of NOTALPHA would yield a non-zero value for results that are alphanumeric and not strictly numeric.

For more details on the ANY and NOT functions and for the complete code on creating ISO 8601 dates using these functions refer to the following paper:

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